

Prescribed Burning for Timber and Wildlife

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The use of prescribed fire has been around for centuries in North America, being first used by native people for creating access to game and good feeding range for deer, etc. Nature helped this process along in the Southeast by causing lightning set fires that burned large expanses (tens or hundreds of thousands of acres per burn) of upland longleaf pine woodlands each year depending upon seasonal weather. Amazingly enough, and contrary to popular belief, the Southeast was dominated by a near monoculture of pine except for the wetter draws and creek/river bottoms where fire seldom burned. Through thousands of years of consistent fire, plants and animals adapted to this dominant habitat type and often required it for survival.

Also, contrary to popular belief, this predominantly pine stand with a scattering of upland and bottomland hardwoods was the habitat type which resulted in the huge populations of game and non-game wildlife the first settlers to the Southeast described. This woodland described by early botanists and travelers was a “cathedral-like” forest, “scatteringly planted to broom-pine (longleaf),” with a grassy (herbaceous) understory that was very easy but monotonous to ride through.

In today’s environment, it is becoming increasingly uncommon to see large scale burning in the woodlands, both because of excessive development nearby or lack of understanding of the benefits of prescribed fire in the piney woods. Burning for preparation of clearcut sites for replanting is most common but does not have the same wildlife benefits.

Smoke management is the most common problem with many complaints arising due to “smoking in” roadways and developments. “Smoke on the Road” signs, pre-burn notification of affected residents and a simple explanation of why you are burning may reduce complaints.

So the sensible question arises: why go to all the trouble to burn? The simple answer is that more acres of wildlife habitat can be positively influenced for far less money with controlled burning than with probably any other manage-



Prescribed burning is often used after clearcutting to prepare the ground for replanting.

ment technique. Generally, burning helps control sapling hardwoods, keeping the woodlands more open, allowing sunlight to reach the dirt, thereby stimulating native plants that many species rely on for food. In addition, burning reduces the duff layer on the ground, scarifies seeds, and acts as a fertilizer catalyst promoting the sprouting of many seeds that would be dormant without fire. With that introduction, let's look at the more common species that benefit from a controlled burning program.

Quail

Of all the game species occurring in Alabama, quail have had the hardest time in the environment of the last three decades. For a variety of reasons primarily related to habitat destruction and degradation, quail populations have severely declined throughout the Southeast. One of the most obvious habitat degradation factors is the lack of fire in the woodlands. Ask anyone who lived in rural Alabama before the late 1960s what the woodlands were like and you will learn a few things about quail management and burning.

Fire was routinely used to control hardwoods and quail were abundant around the many small farms. Quail is also one of the only game animals that can seldom be managed without annual burning in portions of their range.

Several benefits are associated with fire that directly influence quail populations. In woodlands that are kept open (lots of sunlight on the ground), fire keeps the sapling hardwoods under control but still allows resprouting. This allows some “hard” cover to be retained close to the

ground giving birds some protection from predators. Fire also removes buildup of dead vegetation (duff) on the ground, exposing seeds. This means quail have access to food and can more easily move through the growing vegetation. By stimulating hard-seeded plants such as legumes to sprout, fire actually increases the production of seeds and food plants on which quail rely through the year. Fire promotes grasses to grow (by controlling taller hardwood saplings) in the understory and, by leaving portions of the woodlands unburned for a

year, allows you to increase coverage of quality nesting cover. Research is indicating that burned woodlands rival fallow fields for insect production, and quail cannot be raised without good quality brood rearing range containing high insect densities.

Deer

Utilizing fire for deer management is not as often used as for quail management, but outside of the Black Belt, some of the largest body-sized and racked deer can be found on areas managed for quail. They may not need the open ground to feed and move about, but the promotion of legumes and other forbs helps increase quality food supplies for deer. Amazingly, the majority of food that deer eat year round are these “weeds,” which are strongly promoted by fire. Deer select foods in these burned woodlands that tend to be the same legumes, etc. which are so important for quail foods and deer may also be having an impact on quail production in Alabama. Regularly burned open piney woods may not look like the best deer woods due to the low herbaceous understory, but you would be amazed at the deer densities that this habitat type can support due to increased food supplies. As with quail management, burning in pine stands for deer should be tied closely with timber thinnings.

Turkeys

Although wild turkeys can be sustained at a high density without prescribed burning and benefit the least from the open, burned piney woods that quail like, they will benefit from regular controlled burning on a portion of their range each year. Turkey like the open nature of a more heavily stocked (shady) mixed pine/hardwood stand that is occasionally burned to keep the shrub layer at a minimum and increase production of herbaceous weeds. Burning 20 percent of your upland pine and mixed pine

stands per year is probably optimal for wild turkeys.

Non-game and Others

Several non-game wildlife species are either dependent upon or benefit from prescribed burning. Red-cockaded woodpecker, gopher tortoise, and indigo snake are species that rely on this type of habitat management to survive and are federally protected within their range. Grasshopper and Bachman's sparrows, pine and prairie warblers, parulas, towhees, meadowlarks, bobolinks, indigo buntings, blue grosbeaks, vireos, and flycatchers are examples of birds that benefit from early successional habitats like burned, open pinelands. These birds are of special concern by both state and fed-



Many non-game species like the prairie warbler benefit from prescribed burning.

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eral agencies due to declines that are nearly as severe as that of bobwhite quail in the last 30 years. Maintaining grassy/weedy woodlands and idle fields on your property will greatly assist in the maintenance of these species.

Timber

Managing timber in a regularly burned environment can be a little more problematical; however, utilizing longleaf pine wherever possible greatly assists a manager to maintain uplands with burning. Longleaf can be burned

much earlier in its life (possibly as early as the second year after planting or regeneration). Loblolly and shortleaf pine can be managed and burned regularly, but burning must be done carefully to avoid damaging young regeneration where it exists or is wanted. Once pine stands have grown to 3-4 inches in diameter and have been burned once or twice, they are relatively resistant to fire damage. There is conflicting information on whether regular burning slows the growth of pine timber, but generally it can assist in creating clean, limb-free boles on poles and logs and helps tree growth by reducing competition from hardwoods. Burning regularly with slow, cool fires probably has much less effect on timber growth than burning once

every 5 or more years when the fires are much hotter and flame height is much higher. Burning later in the growing season probably has more negative effect on pine growth than winter fires. Undoubtedly, late, hot fires that result in high rates of needle scorch will slow growth or eventually kill even mature pines.

Burning in hardwood stands should generally be avoided but there is interesting research being done on the positives and negatives of cool fires in mature hardwood stands.

Fire in mixed pine/hardwood stands will eventually result in the mortality of some of the thinner-barked hardwoods but will also

allow more sunlight (taken up by the large canopy of the hardwoods in summer) to reach the ground during the growing season, resulting in better and more wildlife foods. Burning in young upland hardwood stands should be reserved for site preparation prior to replanting and for the control and removal of those hardwood stands. In general, open, fire-maintained pine woodlands are better wildlife habitat anyway.

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Site preparation burning is usually done in the fall and on clean sites that are to be planted in the winter. Benefits to wildlife are there, but are minimal compared to woodland burning. Timing of burn is also a critical component of a burning program and a subject of recent debates.

Winter/spring—This is the most common and traditional time of burning. The winter season is dominated with cool temperatures, frequent moist cold fronts, consistent northwest winds and low humidity—ideal burning conditions. Burning two to three days following a soaking rain usually results in excellent woodland burning weather. Seeds of weeds have not sprouted, leaves have not emerged on woody stems and generally little plant mortality is expected at this time of year. The main effect is cleaning up dead plant material, incorporating ash as a fertilizer, and top-killing some of the smaller hardwood sprouts and shrubs. Plant response following winter burns begins once the weather warms up and generally favors legumes and forbs, which are excellent wildlife foods. Grasses such as broomsedge are often

common or dominant following cool season fires.

Growing season—Late spring/summer fires are beginning to be more common on prescribed burning programs due to the theory that it is the natural time frame for lightning set fires. With most of the woodland weeds sprouted and shrubs and hardwood trees in full leaf, much higher mortality can be expected in hardwood stands. Growing season fires are often used in pine stand and wildlife management for the high control of hardwood and shrubs it provides. Some “fire adapted” plants such as wiregrass produce heavier crops of seed following summer fires, and growing season burns can be used to prepare longleaf sites for natural seedling establishment. Drawbacks to this season of fire are the mortality of turkey, quail, and songbird nests, and killing back some of the better quality food plants such as legumes and forbs, and favoring grasses.

Conclusion

As you can see, developing a quality burning program in the woodlands can

be complex and the advice of a professional is recommended. Alternatives such as utilizing chemicals for hardwood control may not achieve the desired results. Beware of advertisements claiming techniques that have all the positives of burning without any drawbacks. One of the most important and basic benefits of prescribed burning is the removal of rank, dead vegetative material from the forest floor allowing ground dwellers such as quail to move about and find food. Day in and day out, a burning program is a cheaper and more effective wildlife management technique than utilizing chemicals for maintaining open pine stands. There is no “magic bullet,” and all techniques (burning, chemicals, bushhogging, disking, etc.) have their positives, negatives, and a place in a management program.

The Alabama Forestry Commission conducts prescribed burning for landowners. Consult your local office for current costs and more information.

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